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Scenario Script

- 1) Initial Plan Generation
 - a) Path planner used to find optimal path (sequence) to all the science targets
 - b) Activity planner used to schedule activities involved in visiting science targets and fulfilling science observations; checks operations and system constraints and detects conflicts in plan
- 2) Resource conflict occurs
 - a) Memory and energy conflicts detected near end of plan
 - i) Lowest priority science activity and its associated setup activities removed from plan to free up the over subscribed resources
 - b) A new sequence is generated
- 3) Traverse is executed to the first science target location
- 4) Spectrometer read is performed at the first science target location
- 5) Traverse to the second science target is begun
 - a) In route an obstructed path is detected
 - b) Reactive component looks for a new path that can be achieved in the original allotted time; None can be found
 - c) Replanning occurs to maximize the science return
 - d) Science targets are resequenced to visit target last instead of second
- 6) Traverse to third target is executed
- 7) Imaging science activity is performed at third science target location
 - a) Imaging activity takes more memory than anticipated (lower level of compression than expected – content dependant image compression)
 - b) This causes a predicted memory storage resource conflict (running out of available memory) later in the plan
 - c) Replanning occurs to resolve memory conflict
 - i) Results in discarding a low priority science activity to maintain operations constraints and maximize science return with available resources
- 8) Traverse to fourth science target
 - a) In route an obstructed path is detected
 - b) This time the reactive component is able to generate a new local path to the original target within the allotted time (no global replanning necessary)
- 9) A dig science activity is performed at the fourth science target
 - a) The dig activity uses more energy than anticipated resulting in a predicted energy shortfall for the end of day communications activity
 - b) Replanning occurs to ensure that the communications activity has enough energy available
 - i) Results in discarding a low priority science activity to maintain operations constraints and maximize science return with available resources
- 10) Traverse to the fifth science target
- 11) Imaging science activity is performed at fifth science target location
- 12) Traverse to sixth and final science target location
 - a) Note this is the original second target that was resequenced for last when the first obstructed path occurs